

Claims

- [c1] A method for treating subterranean formation comprising providing distributed temperature sensors, injecting a treatment fluid and monitoring the temperature across the treatment interval during the injection process.
- [c2] The method according to claim 1, wherein the step of providing distributed temperature sensors is performed through a coiled tubing unit.
- [c3] The method according to claim 1, further comprising monitoring the temperature after the injection process.
- [c4] The method according to claim 1, further comprising determining a baseline temperature profile before starting the injection of the treatment fluid.
- [c5] The method according to claim 2, further comprising determining a baseline temperature profile before starting the injection of the treatment fluid.
- [c6] The method according to claim 3, further comprising the step of injecting a non-reacting fluid before the step of injecting the treatment fluid to calculate a differential temperature profile.

- [c7] The method according to claim 1 further comprising monitoring the pressure across the treatment interval during the injection process.
- [c8] The method according to claim 1 wherein the distributed temperature sensors are an optical fiber through which laser generated light pulses are sent at timed intervals.
- [c9] The method according to claim 1, wherein the distributed temperature sensors are based on an array of Fiber Bragg Grating temperature sensors.
- [c10] The method according to claim 1, further including determining the actual location of the treated zones.
- [c11] The method according to claim 1, comprising adjusting the treatment in real time.
- [c12] The method according to claim 9, wherein the step of adjusting the treatment includes adding a diverter or adjusting the amount of added diverter.
- [c13] The method according to claim 9, wherein the step of adjusting the treatment includes changing the position of the coiled tubing injection point.
- [c14] The method according to claim 1, where the treatment is a matrix treatment.

- [c15] The method according to claim 1, where the matrix treatment is matrix acidizing.
- [c16] The method according to claim 1 where the treatment is gravel packing.
- [c17] The method according to claim 1, where the treatment is acid fracturing.
- [c18] The method according to claim 1, where the injection treatment consists in a plurality of stages of injection of alternating treatment fluids and wherein at least some stages of the treatment consist in injecting a foam.
- [c19] The method according to claim 1, further comprising the step of measuring the bottomhole pressure during the treatment.
- [c20] The method according to claim 19, wherein the bottom-hole pressure is measured through distributed sensors.